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Self-employment through the COVID-19 pandemic: An analysis of linked monthly CPS data

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ARTICLE INFO

Keywords:

Self-employment
Entrepreneurship
COVID-19 pandemic
Minorities
Women

ABSTRACT

The COVID-19 pandemic that began in the United States in March of 2020 had a profound adverse effect on the economy. In particular, the pandemic had a harsh impact on women, minorities, and self-employed individuals. However, research on why the pandemic hit some groups harder is in its nascent stages. We contribute to the growing body of knowledge by comparatively analyzing the inability to work due to the pandemic in the wage and self-employment sectors. We utilize data from the Current Population Survey from May 2020 to May 2021 to investigate the effect of individual, business, and geographic characteristics on the probability of work interruption in each sector. We find that self-employers were much harder hit but fared better than wage workers in several of the harder-hit sectors and when they had incorporated businesses. We also find that women, non-Whites, and Hispanics were more adversely affected in both sectors.

1. Introduction

The novel coronavirus that began to spread in the United States in March of 2020 brought its economy to a halt. However, the impact of the ensuing COVID-19 pandemic was not felt equally across the nation. The disease had harsher economic and health impacts on immigrant populations and communities of color, especially among essential or exposed workers and people with inadequate access to healthcare (Tai et al., 2021). In the United States, the risk of experiencing pandemic hardships—like food insufficiency, employment income loss, and housing instability—was higher for non-Hispanic Blacks and Hispanics than non-Hispanic Whites (Park 2021). Moreover, in states that were hit hardest by the pandemic, single, younger, less educated, and self-employed individuals were more likely to experience food shortages (Klee et al., 2020).

The impact on self-employment is of particular concern, as businesses were forced to close without forewarning, and some never recovered. Small business owners in industries with more exposure asserted that they anticipated extreme difficulty staying viable if the pandemic carried beyond four months (Bartik et al., 2020), which it ultimately did. From February to April 2020, the number of U.S. self-employers decreased by 22 %, a loss of 3.3 million business owners (Fairlie 2020a). In a sample of 5800 U.S. small businesses (skewed toward retail sales), Bartik et al. (2020) found that 43 % temporarily closed due to the pandemic. Business closures strain the economic well-being of workers and add additional demand on social programs.

Preliminary data highlights the pandemic's uneven effect on women, minorities, immigrants, and self-employed workers and exhibits the paucity of our current understanding. Studies have found that self-employed women were more likely to face unemployment than men during the pandemic in the United States (Grashuis 2021; Kalenkoski and Pabilonia 2020a, 2020b) and in Europe

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(Blundell and Machin 2020; Graeber et al., 2021; Platt and Warwick 2020). As the pandemic led to widespread daycare and school closures, many researchers point to the added childcare burden as a barrier to business survival for women, in particular.

Also, the pandemic had a more substantial adverse effect on immigrants and racial and ethnic minorities in the self-employed sector in the United States. In the first full month of the pandemic, April 2020, the drop in the number of Black, Asian, and Hispanic business owners was larger than that among Whites, and the number of businesses decreased more among immigrants than natives (Fairlie 2020a). These trends continued into June 2020, and the relative disparities grew along native-immigrant lines and between Whites and non-Whites (Fairlie 2020b).

Understanding of the impact of the COVID-19 pandemic on self-employed families is in its nascent stages. Therefore, more research is needed that explores how the pandemic impacted different groups and helps determine preventative measures to mitigate future health and economic crises. Grashuis' (2021) study is the first we know that sought to measure unemployment risk among self-employed individuals during the pandemic. His analysis of Current Population Survey (CPS) data offered important insight into how disadvantaged groups in the self-employed sector face a higher risk. Like Grashuis (2021), the present study addresses the COVID-19 pandemic's unequal impacts on self-employed individuals. However, we assess unemployment differences between self-employed individuals and wage-workers to measure and explain the hardships of the pandemic. Also, we extend the range of the study period to May 2021 to investigate how the pandemic affected workers more than a year after it began. This study dives into some of the dimensions encouraged by Grashuis (2021) for further research. Specifically, we study how characteristics of business owners, their household composition, and their employment industry affect underemployment probability, referred to as work stoppages and interruptions. Understanding the COVID-19 pandemic's unequal impacts on self-employed individuals is critical to identifying barriers to economic resilience amid a financial and health crisis.

Self-employed workers are at high risk of adverse effects from loss of work and no income, as they do not get sick pay, their position may be temporary or without a contract, and they may have less in savings (Douglas et al., 2020). Simple tabulations of CPS data show that the rate of inability to work was between 2.4 and 4.7 times higher among self-employed individuals than wage workers. The disparity grew throughout the pandemic, compounding the economic stress put on these families. This pattern is particularly worrisome as scholars contend that "it is likely that during times of crisis, self-employed individuals will expect their incomes to fall more considerably than will those employed in organizational settings" (Wolfe and Patel 2021, p. 12).

2. Material and methods

2.1. Data and measures

We use combined monthly samples of the CPS from May 2020 to May 2021 in our exploratory analysis of pandemic-related work interruptions (Flood et al., 2020). The monthly survey uses a 4-8-4 sampling pattern, where a U.S. household is surveyed for four consecutive months, not surveyed for the proceeding eight months, and then surveyed for four more months. CPS data is often analyzed cross-sectionally due to the difficulty of perfectly linking participants across months, as the CPS surveys homes regardless of whether the previous participants are still residing there. However, following the process from IPUMS CPS workshop material,¹ we link cases across monthly samples and flag individuals who cannot be matched based on age, race, and sex. Individuals we cannot link across months are assigned a new ID and matched with the following months where applicable. Thus, all uniquely identified respondents are linked across months through this process, which is critical to account for the data structure.

In each monthly sample, between 93,543 (June 2020) and 113,720 (October 2020) U.S. individuals took the survey, but only those aged 16 or older were asked the pandemic-related question used for our study. They comprise roughly 81 % of each monthly sample. Moreover, we restrict our sample to individuals in the labor force for a reduced sample size of 237,610 unique individuals and 669,784 observations, of which 10.98 % are in the self-employed sector. The CPS included several pandemic-related questions from May 2020 through May 2021, the time of this writing. Participants were asked, among other questions, "At any time in the last 4 weeks, were (you/name) unable to work because (your/his/her) employer closed or lost business due to the coronavirus pandemic?" We use this question as our outcome variable across our analysis, where 1 represents "Yes" and 0 represents "No."² Across the 13 months, 7.91 % (weighted) of the respondents in the labor force reported they were unable to work. The figure was highest in May 2020 when 19.21 % were unable to work and gradually declined to 3.04 % in May 2021. Fig. 1 shows the decline over time in the sample for each sector and among all workers, displaying the weighted proportion of respondents who were unable to work during each month, which was much higher in the self-employed sector throughout the study period.

We use many covariates in our analysis. We include dummy variables for gender (female = 1), employment sector (self-employed = 1), race, Hispanic ethnicity, educational attainment, employment industry, metropolitan location, respondent's state (or District of Columbia), and month and year of the survey. The last two variables control for the wide array of policies across the United States and changes in the pandemic intensity over time. We create a combined measure of the respondent's marital status and, if present, the spouse's employment status. We also create a variable to measure one's immigration status. Using one's year of immigration and age, we code individuals who arrived after age 13 as immigrants and all others as non-immigrants.³ Lastly, we include continuous

¹ Available at https://cps.ipums.org/cps/cps_workshop2018_materials.shtml.

² The survey item does not specify the extent to which the respondent was unable to work during the reference period. Thus, it measures interruptions in typical work patterns, such as work stoppages and reduction in working hours.

³ The practice of separately categorizing child arrivals (1.5-generation immigrants) is common in migration studies, as their assimilation processes are dissimilar to older arrivals.

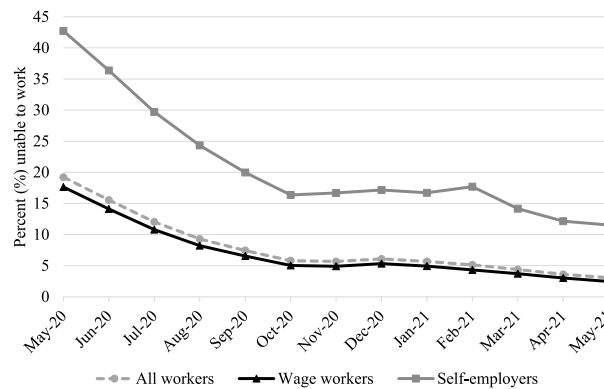


Fig. 1. Percent of respondents in the labor force unable to work due to the COVID-19 pandemic over time by sector, Source: weighted CPS data.

measures of the respondent's age and how many of the respondent's total children, children under age 5, and total family members are in the household. Table 1 presents descriptive statistics for the weighted sample, with separate statistics by sector.

2.2. Modeling strategy

We estimate pooled logistic regressions with the outcome inability to work during the previous four weeks due to the COVID-19 pandemic. We use a cluster-robust estimate to correct for error correlation over time for a given individual (Cameron and Trivedi 2009), specifying with the unique identifier created through the matching process explained above. First, we estimate a model for all individuals in the sample regardless of work sector with the predictors described in the previous section. Next, we estimate two models following this procedure using the same list of covariates: one each for wage workers and self-employed workers. In the latter model, we add a variable for incorporated business status (1 = incorporated). Finally, we conduct a simultaneous estimation and test for significant intra-model differences in coefficients between the wage-worker and self-employer models using adjusted Wald tests (Agresti and Finley 2009). In all models, we apply basic monthly weights and correct for error correlation of multiple responses by the same individual.

3. Results and discussion

Results of the pooled regression models are presented in Table 2, displaying the coefficients as odds ratios. Findings from Model 1, which includes workers in the wage and self-employed sectors, highlight several ways the pandemic unequally affected employment across the U.S. population. Models 2 and 3, also in Table 2, parse out these trends within the wage and self-employed sectors, respectively. The results from the adjusted Wald tests are denoted in the rightmost column, indicating a significant difference between a predictor's effect in each model (i.e., Model 2 vs. Model 3).

3.1. Harder initial impact and slower recovery among self-employed

Model 1 shows that self-employed individuals are nearly 2.7 times more likely to be unable to work due to the pandemic. The diminishing effect of the pandemic on the inability to work is delayed in the self-employed sector compared to the wage sector. Compared to May 2020, the reference period, the likelihood of reporting pandemic-related inability to work decreased in subsequent months for all types of workers (Model 1, 2, and 3). There is no statistical difference in the effects among self-employed and wage workers for June and July. However, the negative effects for the months of August 2020 through May 2021 are significantly smaller among self-employed individuals than wage workers, as shown in Models 2 and 3, signifying that the likelihood of pandemic-related inability to work remains higher for self-employers across these ten months.

Recovery from the initial impact of the pandemic was slower in the self-employed sector more than a year after the pandemic began. In the early stages of the pandemic, scholars anticipated the more severe impact it would have on small businesses (Douglas et al., 2020) and workers in the informal economy (Webb et al., 2020). We find that the impact was profound and long-lasting. However, within the self-employed sector, individuals with an incorporated business are 20.9 % less likely to face pandemic-related work stoppage.

3.2. Impact on self-employers milder in hardest-hit industries

Model 3 offers evidence of how the pandemic affected self-employers in different industries. Compared to professional, scientific, and management services (the reference category), pandemic-related inability to work is less likely for self-employers in agriculture, social services, finance, insurance, and rental, leasing, and real estate. Conversely, self-employed individuals in many services industries like communications, education, personal services, food services, and arts, entertainment, and recreation are more likely to face a work interruption. This pattern is similar for wage workers (Model 2).

Despite the harsher impact in their sector, self-employed workers fared significantly worse than wage workers in only one industry (education) in terms of reported inability to work and fared far better in many others. The industry dummy variables in Models 2 and 3 imply that self-employers fared better than wage workers in many hardest-hit industries, like food services and accommoda-

Table 1

Descriptive statistics of weighted sample data.

Variables	All workers	Wage workers	Self-employers
Self-employed (%)	10.23	–	–
Incorporated self-employed business (%)	–	–	38.19
Female (%)	47.02	48.11	37.51
Marital status & spouse employment status (%)			
Not married/spouse absent	39.61	41.01	27.41
Married, spouse not in the labor force	12.88	12.45	16.68
Married, spouse unemployed in self-emp. sector	0.20	0.17	0.46
Married, spouse unemployed in another sector	2.48	2.53	1.96
Married, spouse self-employed	5.48	3.95	18.95
Married, spouse employed in another sector	39.35	39.90	34.55
Mean (<i>std. err.</i>) number of own children in the home	0.79 (0.002)	0.78 (0.002)	0.89 (0.005)
Mean (<i>std. err.</i>) number of own children under age 5 in the home	0.15 (0.001)	0.15 (0.001)	0.13 (0.002)
Mean (<i>std. err.</i>) number of own family members in the home	2.96 (0.002)	2.98 (0.002)	2.87 (0.007)
Mean (<i>std. err.</i>) respondent age	42.24 (0.021)	41.39 (0.021)	49.69 (0.060)
Race (%)			
White	77.28	76.53	83.91
Black	12.62	13.13	8.11
Native American	1.10	1.14	0.70
Asian/Pacific Islander	6.86	0.70	5.60
Other	2.14	2.20	2.14
Hispanic ethnicity (%)			
Hispanic	18.07	18.37	15.48
Non-Hispanic	81.93	81.63	84.52
Immigration status (%)			
Immigrant (arrived after age 13)	13.58	13.29	16.18
Non-immigrant	86.42	86.71	83.82
Employment industry (%)			
Agriculture	1.54	1.02	6.12
Mining	0.45	0.48	0.19
Construction	7.45	6.41	16.52
Manufacturing	9.63	10.34	3.49
Wholesale trade	2.24	2.27	1.97
Retail trade	10.84	11.19	7.82
Transportation	5.05	5.00	5.48
Utilities	0.89	0.97	0.13
Communications	1.78	1.78	1.75
Finance	3.12	3.27	1.77
Insurance	1.77	1.81	1.41
Rental, Leasing, & Real Estate	2.04	1.63	5.65
Professional, Scientific, & Management Services	11.19	10.75	15.08
Public Administration	4.82	5.37	–
Education	8.88	9.65	2.15
Health	11.55	12.24	5.47
Social Services	2.17	2.08	2.95
Arts, Entertainment, & Recreation	1.95	1.76	3.62
Accommodation	0.77	0.83	0.29
Food Services	5.90	6.25	2.88
Personal Services	2.17	1.72	6.08
Other Services & Maintenance	3.81	3.19	9.18
Observations (<i>unweighted</i>)	669,784	596,219	73,565

Source: CPS data May 2020–May 2021

tion. This pattern is not necessarily unexpected. In these industries, wage workers would be the first to lose their employment during an economic crisis. Self-employers may endure the impact and preserve their own employment, running their business at a lower capacity. Self-employers have the economic incentive and ability to terminate their employees' positions before their own.

3.3. Impact on women equal across self-employed and wage sectors amid disparities by household composition

The probability of pandemic-related work interruptions is higher for self-employed women than self-employed men. Also, it is higher for wage worker women than wage worker men. However, we did not identify a disparity between self-employed and wage worker women, although the COVID-19 pandemic was predicted to have a greater impact on self-employed women—including one scholar labeling it “a crisis of the female self-employed” (Graeber et al., 2021). Across the three models, women are 13 %–15 % more likely to face pandemic-related underemployment than men. The effect of gender is not significantly different across sectors in the presence of our covariates, which includes measures of children and family members in the home and a spouse's employment status.

Table 2

Results of pooled logistic regressions of inability to work due to COVID-19 pandemic (yes/no = 1/0) among all workers, wage workers, and self-employers; displaying odds ratios.

Variables ^a	Model 1: All workers	Model 2: Wage workers	Model 3: Self-employers	‡
Female (ref = males)	1.153*** (0.017)	1.157*** (0.018)	1.131*** (0.041)	
Marital status & spouse empl. status (ref = not married/spouse absent)				
Married, spouse not in labor force	0.839*** (0.019)	0.861*** (0.021)	0.796*** (0.041)	
Married, spouse unemployed in self-emp. sector	2.074*** (0.197)	2.038*** (0.229)	2.271*** (0.399)	
Married, spouse unemployed in another sector	1.624*** (0.053)	1.657*** (0.058)	1.492*** (0.142)	
Married, spouse self-employed	0.859*** (0.025)	0.968 (0.036)	0.813*** (0.041)	‡
Married, spouse employed in another sector	0.748*** (0.012)	0.766*** (0.014)	0.713*** (0.031)	
Number of own children in the home	1.020* (0.009)	1.020* (0.010)	1.084*** (0.026)	\$
Number of own children under age 5 in the home	1.059*** (0.018)	1.066*** (0.020)	1.006 (0.041)	
Number of own family members in the home	0.983** (0.006)	0.988† (0.006)	0.913*** (0.019)	‡
Self-employment (ref = wage worker)	2.671*** (0.052)	—	—	
Incorporated business (ref = not incorporated)	—	—	0.791*** (0.027)	
Age	1.006*** (0.001)	1.006*** (0.001)	1.003** (0.001)	\$
Race (ref = White)				
Black	1.261*** (0.027)	1.244*** (0.029)	1.397*** (0.082)	
Native American	1.207** (0.081)	1.129† (0.080)	1.752** (0.319)	\$
Asian/Pacific Islander	1.051† (0.031)	1.083* (0.035)	1.054 (0.078)	
Other race or multiple races	1.305*** (0.061)	1.270*** (0.064)	1.553*** (0.193)	
Hispanic (ref = non-Hispanic)	1.217*** (0.024)	1.227*** (0.026)	1.147** (0.061)	
Immigration status (ref = non-immigrants)	1.227*** (0.026)	1.226*** (0.029)	1.236*** (0.062)	
Educational attainment (ref = less than high school)				
High school diploma or equivalent	1.038 (0.027)	1.059* (0.030)	1.044 (0.074)	
Some college	1.082** (0.029)	1.082** (0.032)	1.261** (0.091)	\$
Bachelor's degree	0.846*** (0.025)	0.818*** (0.026)	1.116 (0.084)	‡
Master's degree or higher	0.659*** (0.022)	0.605*** (0.023)	0.958 (0.080)	‡
Empl. industry (ref = Professional, Scientific, & Management Services)				
Agriculture	0.464*** (0.029)	0.712*** (0.057)	0.282*** (0.028)	‡
Mining	1.491*** (0.138)	1.599*** (0.155)	1.172 (0.398)	
Construction	1.245*** (0.039)	1.413*** (0.052)	0.977 (0.059)	‡
Manufacturing	0.973 (0.030)	1.029 (0.035)	0.956 (0.090)	
Wholesale trade	0.942 (0.049)	0.963 (0.055)	0.988 (0.121)	
Retail trade	1.069* (0.031)	1.134*** (0.038)	0.989 (0.069)	
Transportation	1.290*** (0.047)	1.411*** (0.057)	1.008 (0.081)	‡
Utilities	0.501*** (0.049)	0.528*** (0.054)	0.639 (0.308)	
Communications	1.308*** (0.070)	1.331*** (0.079)	1.391** (0.172)	
Finance	0.446*** (0.026)	0.457*** (0.029)	0.490*** (0.073)	
Insurance	0.501*** (0.035)	0.486*** (0.039)	0.667** (0.100)	
Rental, Leasing, & Real Estate	1.110* (0.053)	1.349*** (0.079)	0.736*** (0.058)	‡
Public Administration	0.524*** (0.024)	0.569*** (0.027)	—	
Education	1.231*** (0.037)	1.312*** (0.044)	1.669*** (0.169)	\$
Health	0.818*** (0.025)	0.843*** (0.028)	0.967 (0.074)	
Social Services	1.383*** (0.061)	1.633*** (0.080)	0.770** (0.075)	‡
Arts, Entertainment, & Recreation	3.780*** (0.149)	4.212*** (0.187)	2.562*** (0.214)	‡
Accommodation	4.212*** (0.235)	4.714*** (0.275)	1.455 (0.340)	‡
Food Services	2.721*** (0.085)	3.043*** (0.106)	1.397*** (0.130)	‡
Personal Services	2.926*** (0.112)	3.235*** (0.149)	2.281*** (0.159)	‡
Other Services & Maintenance	1.270*** (0.049)	1.429*** (0.065)	1.035 (0.072)	‡
Metropolitan location (ref = Metro, in central city)				
Not identifiable	0.779** (0.061)	0.815* (0.071)	0.697* (0.116)	
Not in metro area	0.726*** (0.018)	0.741*** (0.020)	0.671*** (0.039)	
Metro, outside central city	0.879*** (0.014)	0.886*** (0.016)	0.846*** (0.033)	
Metro, central city status unknown	0.795*** (0.019)	0.817*** (0.021)	0.700*** (0.041)	\$
Month and year (ref = May 2020)				
June 2020	0.721*** (0.012)	0.717*** (0.013)	0.752*** (0.032)	
July 2020	0.499*** (0.010)	0.492*** (0.010)	0.542*** (0.026)	
August 2020	0.362*** (0.008)	0.356*** (0.008)	0.402*** (0.021)	\$
September 2020	0.269*** (0.006)	0.262*** (0.006)	0.310*** (0.016)	‡
October 2020	0.199*** (0.005)	0.192*** (0.005)	0.241*** (0.013)	‡

(continued on next page)

Table 2 (continued)

Variables ^a	Model 1: All workers	Model 2: Wage workers	Model 3: Self-employers	‡
November 2020	0.197*** (0.005)	0.189*** (0.005)	0.247*** (0.014)	‡
December 2020	0.213*** (0.005)	0.207*** (0.005)	0.252*** (0.014)	‡
January 2021	0.195*** (0.005)	0.186*** (0.005)	0.248*** (0.014)	‡
February 2021	0.175*** (0.004)	0.158*** (0.004)	0.264*** (0.014)	‡
March 2021	0.145*** (0.004)	0.135*** (0.004)	0.197*** (0.011)	‡
April 2021	0.117*** (0.003)	0.108*** (0.003)	0.163*** (0.010)	‡
May 2021	0.094*** (0.003)	0.081*** (0.003)	0.152*** (0.009)	‡
Constant	0.214*** (0.011)	0.196*** (0.011)	0.743* (0.099)	‡
Observations	667,774	594,209	73,565	

***p < 0.001, **p < 0.01, *p < 0.05.

‡p < 0.10.

‡ wage-worker v. self-employer (Model 2 v. Model 3) coefficients different at p < 0.01 with adjusted Wald test.

§ coefficients different at p < 0.05 with adjusted Wald test.

Note: Omitted results from adjusted Wald tests show Model 2 v. 3 coefficients differ at p < 0.01 for Alabama, Colorado, North Dakota, and Rhode Island and p < 0.05 for Arizona, Maine, South Carolina, and Wyoming. For Arizona, Colorado, Maine, Rhode Island, and Wyoming, the likelihood of inability to work was higher in the self-employed model.

^a Additional variables not shown: respondent's state (or District of Columbia).

These household dimensions may account for gender-based differences found in other research, which pointed to childcare-related barriers (Grashuis 2021; Kalenkoski and Pablonia, 2020a, 2020b).

In Models 2 and 3, having more children increases one's inability to work in both sectors as well, and this effect is larger in the self-employed sector. Inversely, having more family members in the house decreases the inability to work in both sectors, and that adverse effect on underemployment was larger in the self-employed sector. In that sector, having a self-employed spouse has a more substantial effect in reducing the inability to work. The effects of these household variables are somewhat unexpected. We might expect self-employers to be better able to balance childcare with work duties due to the more flexible work arrangements. However, their work might be more challenging to carry out remotely. For example, a self-employed worker in construction—the self-employment industry with the highest share—may not be able to work from home and balance childcare duties. This pattern could explain why self-employers with more family members in the house could continue working, as other household members can share childcare responsibilities. Along this line, in a household with two self-employed spouses, their flexible work arrangements help navigate these burdens.

3.4. Minorities face higher odds of pandemic-related inability to work in the self-employed and wage sectors

In terms of demographic characteristics, our analysis finds that some minorities fared worse in terms of inability to work due to the pandemic, which prior research suggested would be the case in the United States—in general (Dyer 2020; Lopez et al., 2021) and in the self-employed sector (Park 2021). Our findings show that Blacks and Native Americans are at least 20 % more likely to be unable to work due to the pandemic than Whites, as are individuals in the other race or multiple races category. Moreover, Asians are marginally more likely to face pandemic-related work interruption than Whites in the wage sector. In each sector, Native Americans are more likely to be unable to work, but the effect is significantly larger among the self-employed. The likelihood of underemployment due to the pandemic is higher for Hispanics than non-Hispanics, and immigrants have poor outcomes as well. Compared to non-immigrants (or immigrants that moved before age 14), immigrants are roughly 23 % more likely to be unable to work due to the pandemic in either sector. The more severe impact on marginalized groups is troublesome, as research has shown that the effects of small business closures and reopening policies are unequal across racial-ethnic groups (Park 2021). The greater impact on immigrants is not unexpected either. In April 2020, Douglas et al. (2020) highlighted how the crisis would be particularly challenging for undocumented immigrants with limited access to health services. This pattern also follows a study from the UK that minority migrants are more likely to experience job loss during the pandemic, which may exacerbate entrenched socio-economic inequalities along racial-ethnic and native-migrant lines (Hu 2020).

3.5. Additional human capital differently protects self-employed and wage workers

Our analysis finds other worker characteristics were relevant as well. The effect of additional years of age on the inability to work due to pandemic is positive in both sectors but significantly smaller in the self-employed sector. Compared to individuals with less than a high school education, those with a college degree are less likely to face pandemic-related underemployment, while the opposite was true for those with some college education. However, within each sector, we find profound differences. Holding a college degree does not reduce the likelihood of pandemic-related inability to work in the self-employed sector, but it does in the wage sector. Conversely, having some college education increases one's inability to work due to the pandemic in both sectors, but the effect is significantly stronger for the self-employed. Thus, additional human capital does not protect self-employed individuals like it does wage workers, though self-employers benefit more from additional years of age—a proxy for experience along with business incorporation.

4. Conclusion

This paper studies the COVID-19 pandemic's unequal impacts on self-employed and wage workers' underemployment probability in the United States using the CPS dataset from May 2020 to May 2021. In all, this research shows that while self-employers were more adversely affected—measured by pandemic-related inability to work—certain self-employers fared much better than others. For example, those with more experience (proxied by business incorporation), more family members, and a spouse with self-employment experience were less likely to face pandemic-related inability to work. However, additional human capital, proxied by education attainment, did not result in better outcomes for self-employed workers.

Self-employment seems to protect some individuals. With the lower probability of inability to work for incorporated business owners, we see that familiarity within the self-employed sector offered protection during the economic crisis. This finding comports with a study showing that inexperienced entrepreneurs were less likely to adjust their business strategy—specifically, using bootstrap financing—to stay open during the COVID-19 pandemic (Block et al., 2021). Moreover, the lower odds of inability to work in some hard-hit industries suggests that self-employers had more control over their employment outcomes than wage workers. While research finds that small business owners and self-employed individuals report greater work flexibility (Abreu et al., 2019), overall, this did not translate into fewer work interruptions during the pandemic.

Critically, this analysis does not measure income loss or the magnitude in reduced employment hours, as we examine predictors of one's inability to work due to the pandemic. Studies that focus on these other outcomes have found that self-employment income loss was higher for women in Germany (Graeber et al., 2021) and that those with lower income in the United States were more adversely affected (Grashuis 2021).

Our study shows that not only were self-employed workers hit harder two months into the pandemic, but they also faced a more challenging recovery over a year into the pandemic. As the CPS uniquely allows investigation into work interruptions that respondents specifically attribute to the COVID-19 pandemic, our findings reflect the direct impacts of the pandemic on self-employed individuals that were dissimilar among wage workers. Even 15 months after the pandemic hit the United States, self-employed workers continue to attribute their inability to work to the pandemic at alarming rates.

Author statement

Samuel Mindes: Conceptualization, Methodology, Formal analysis, Data curation, Writing – original draft, Paul Lewin: Conceptualization, Writing – review & editing, Funding acquisition, Project administration.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgments:

This work is supported by the Agriculture and Food Research Initiative (AFRI) award No. 2019-68006-29638 from the USDA National Institute of Food and Agriculture. Financial support is gratefully acknowledged.

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